**THAT WHICH IS CLAIMED IS:**

1. An alternator system comprising:

a permanent magnet alternator for producing an alternating current;

a battery operatively connected to said permanent magnet alternator to be charged therefrom; and

a voltage regulator operatively connected to said permanent magnet alternator and battery for regulating the charging of said battery, said voltage regulator including a rectifying circuit for rectifying the alternating current, and a semiconductor switching element operative for turning the regulator on and off based on a predetermined temperature threshold to prevent overheating of any voltage regulator electronic components.

2. The alternator system according to Claim 1, wherein said semiconductor switching element comprises an integrated circuit temperature switch that outputs a logic signal when die temperature reaches a predetermined threshold.

3. The alternator system according to Claim 1, wherein said semiconductor switching element is operative for generating an active high, push-pull logic output.

4. The alternator system according to Claim 1, wherein said rectifying circuit comprises at least one silicon controlled rectifier.

5. The alternator system according to Claim 1, and further comprising a diode bridge circuit operative with said at least one silicon controlled rectifier.

6. The alternator system according to Claim 1, and further comprising a push-pull transistor circuit operative with said semiconductor switching element and operative for turning on and off said rectifying circuit after receiving a signal from said semiconductor switching element.

7. The alternator system according to Claim 1, wherein said rectifying circuit comprises two silicon controlled rectifiers.

8. The alternator system according to Claim 1, wherein said voltage regulator comprises two stator terminals.

9. The alternator system according to Claim 1, wherein said voltage regulator comprises a B+ and B- terminal.

10. The alternator system according to Claim 1, wherein said voltage regulator comprises a tachometer terminal.

11. The alternator system according to Claim 1, wherein said voltage regulator comprises an open control loop voltage regulator.

12. The alternator system according to Claim 1, wherein said voltage regulator, battery and said permanent magnet alternator are series connected.

13. The alternator system according to Claim 1, wherein said alternator comprises a flywheel and permanent magnets carried by said flywheel.

14. The alternator system according to Claim 1, wherein said predetermined temperature threshold is about 105 to about 120 degrees Celsius.

15. The alternator system according to Claim 1, wherein said semiconductor switching element is operative for cycling at about 0.05 to about 0.2 Hz.

16. A voltage regulator for operatively connecting to a permanent magnet alternator, and including B+ and B- terminals, said voltage regulator further comprising a rectifying circuit for rectifying any alternating current received from a permanent magnet alternator, and a semiconductor switching element operative for turning the regulator on and off based on a predetermined temperature threshold and preventing any overheating of voltage regulator electronic components.

17. The voltage regulator according to Claim 16, wherein said semiconductor switching element comprises an integrated circuit temperature switch that outputs a logic signal when die temperature reaches a predetermined threshold.

18. The voltage regulator according to Claim 16, wherein said semiconductor switching element is operative for generating an active high, push-pull logic output.

19. The voltage regulator according to Claim 16, wherein rectifying circuit comprises at least one silicon controlled rectifier.

20. The voltage regulator according to Claim 19, and further comprising a diode bridge circuit operative with said at least one silicon controlled rectifier.

21. The voltage regulator according to Claim 16, and further comprising a push-pull transistor circuit operative with said semiconductor switching element and operative for turning on and off said rectifying circuit.

22. The voltage regulator according to Claim 16, wherein said rectifying circuit comprises two silicon controlled rectifiers.

23. The voltage regulator according to Claim 16, and further comprising two stator terminals.

24. The voltage regulator according to Claim 16, and further comprising a B+ and B- terminal.

25. The voltage regulator according to Claim 16, and further comprising a tachometer terminal.

26. The voltage regulator according to Claim 16, wherein said voltage regulator comprises an open control loop voltage regulator.

27. The voltage regulator according to Claim 16, wherein said voltage regulator is operative to be

connected in series to a battery and permanent magnet alternator.

28. The voltage regulator according to Claim 16, wherein said predetermined temperature threshold is about 105 to about 120 degrees Celsius.

29. The voltage regulator according to Claim 16, wherein said semiconductor switching element is operative for cycling at about 0.05 to about 0.2 Hz.

30. A method of regulating the output of a permanent magnet alternator comprising the steps of:

rectifying the alternating current output from the permanent magnet alternator within a voltage regulator that is operatively connected to the permanent magnet alternator; and

turning the regulator on and off based on a temperature threshold reached within a semiconductor switching element contained within the voltage regulator to prevent overheating of any voltage regulator electronic components.

31. A method according to Claim 30, and further comprising the step of outputting a logic signal from an integrated circuit temperature switch when die temperature reaches a predetermined threshold.

32. A method according to Claim 30, and further comprising the step of generating an active high, push-pull logic output.

33. A method according to Claim 30, and further comprising the step of turning on and off at least one silicon controlled rectifier.

34. A method according to Claim 30, wherein said temperature threshold is about 105 to about 120 degrees Celsius.